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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|------------------------|------------------|
| 10/533,436 | 05/02/2005 | Takuya Yamazaki | 2005_0668A | 1382 |
| 513 | 7590 | 04/05/2006 | EXAMINER | |
| WENDEROTH, LIND & PONACK, L.L.P. 2033 K STREET N. W. SUITE 800 WASHINGTON, DC 20006-1021 | | | KOSOWSKI, ALEXANDER J. | |
| | | ART UNIT | PAPER NUMBER | |
| | | 2125 | | |

DATE MAILED: 04/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|-----------------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/533,436 | YAMAZAKI ET AL. | |
| | Examiner Alexander J. Kosowski | Art Unit 2125 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 02 May 2005.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-12 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-12 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on 02 May 2005 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

| | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date: _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>5/2/05</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| | 6) <input type="checkbox"/> Other: _____. |

DETAILED ACTION

- 1) Claims 1-12 are presented for examination in light of the pre-amendment filed 5/2/05.

Claim Rejections - 35 USC § 101

- 2) 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

- 3) Claims 7-10 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Referring to claims 7-10, the claims appears to be a computer program per se, and are merely a set of instructions capable of being executed by a computer. A computer program itself is not a process, and thus a claim for a computer program, without the computer-readable medium needed to realize the computer program's functionality, is nonstatutory functional descriptive material. See § 2106(IV)(1)(a) of the MPEP.

Claim Rejections - 35 USC § 103

- 4) The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

- 5) Claims 1, 4, 7 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kimura (U.S. Pat 5,862,586), further in view of Oyama (U.S. Pat 6,860,002).

Referring to claim 1, Kimura teaches a component mounting sequence optimizing method in component mounting (col. 1 lines 8-11) with use of a component holding head having a plurality of component holding members (col. 1 lines 20-35) and a component image pickup

section for capturing images of components held by the component holding members (col. 9 lines 45-54, whereby a vision camera system is utilized), the method comprising: comparing conveyance times required for conveyances of components held by the component holding members to respective mounting positions by using a control device and determining a mounting sequence for the components held by the component holding head by the control device on basis of a result of the comparison (col. 4 lines 31-42 and col. 5 lines 9-19, whereby mounting sequences are determined based on transport distances in order to minimize mounting tact time). However, Kimura does not explicitly teach determining a mounting sequence based on comparing recognition times required for recognitions of the components held by the component holding members with the component image pickup section.

Oyama teaches a component mounting method (col. 2 lines 22-33) which utilizes a component image pickup section (col. 4 lines 7-19), whereby the time for recognition of components with the imaging device is considered in order to optimize mounting sequences (col. 6 lines 15-31, whereby the order of components to be mounted is optimized based on recognition processing time).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to utilize recognition time for components held by component holding members to determine mounting sequences in the invention taught by Kimura above since recognition processing is necessary to determine the amount of adjustment needed to be made to a component (Oyama, col. 4 lines 55-65), and since considering the time required for component recognition is useful to achieve optimum processing in an apparatus (Oyama, col. 6 lines 25-31).

Referring to claims 4, 7 and 10, the claims vary from claim 1 in that they claim a device, a program, and a recording medium containing a computer executable program, respectively, rather than a method. Examiner notes that both Kimura and Oyama teach the use of devices to perform their respective methods (Kimura, Abstract and Oyama, Abstract), and that both methods are automated and would therefore utilize a programmable electronic controller. Therefore, referring to claims 4, 7 and 10, see rejection of claim 1 above.

6) Claims 2, 5, 8 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kimura, further in view of Oyama, further in view of Schaffer (U.S. Pat 6,260,178).

Referring to claim 2, Kimura and Oyama teach the above. However, they do not explicitly teach determining mounting preparation times that are the longer ones in the conveyance times and the recognition times for the components and determining a component having the shortest one in the mounting preparation times as a component that is to be subsequently mounted.

Schaffer teaches a component mounting method (col. 1 lines 8-10), which computes the time required to place components at each location based on multiple factors (col. 5 lines 5-16), and which gives priority to the components needing the shortest amount of time (col. 7 lines 38-49).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to determine mounting preparation times that are the longer ones in the conveyance times and the recognition times for the components and determine a component having the shortest one in the mounting preparation times as a component that is to be subsequently

mounted in the invention taught above since utilizing a preferred step movement optimizes the throughput of a component placement machine (Shaffer, col. 2 lines 56-59).

Referring to claims 5, 8 and 11, see rejection of claim 2 above.

7) Claims 3, 6, 9 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kimura, further in view of Oyama, further in view of Huber et al (U.S. Pat 6,973,713).

Referring to claim 3, Kimura and Oyama teach the above. However, they do not explicitly teach before the comparing operation, determining mounting conditions required for mounting of the components by the control device.

Huber teaches a component mounting method (col. 1 lines 10-15), whereby a mounting head includes multiple suction devices (col. 4 lines 43-51), and whereby mounting conditions are determined before components are placed (col. 5 lines 19-29, whereby the positioning and use of multiple suction pipettes depends on the data derived from an imaging device, and whereby examiner notes that applicant's specification defines "mounting conditions" to include choice of nozzles that are to suck the components).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to determine, before the comparing operation, mounting conditions required for mounting of the components by the control device in the invention taught above since this would allow for optimally mounting a variety of different components onto a variety of different substrates and would allow calibrating one or more of an automatic component mounting member virtually upon immediate installation (Huber, col. 2 lines 7-30).

Referring to claims 6, 9 and 12, see rejection of claim 3 above.

Conclusion

8) The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Terada et al (U.S. PGPUB 2006/0022019) – teaches the use of a chip recognition camera.

Sumi et al (U.S. Pat 6,356,352) – teaches a component mounter including image recognition means.

9) Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander J Kosowski whose telephone number is 571-272-3744. The examiner can normally be reached on Monday through Friday, alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Picard can be reached on 571-272-3749. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. In addition, the examiner's RightFAX number is 571-273-3744.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-2100.

Alexander J. Kosowski
Patent Examiner
Art Unit 2125

